THE MAC Flyer

MARCH 1987

Award Winners . . . Page 16

THE MAC Flyer

For Greater Safety in MAC Air Operations

March 1987 | MACRP 127-5 | VOL XXXIV NO. 3

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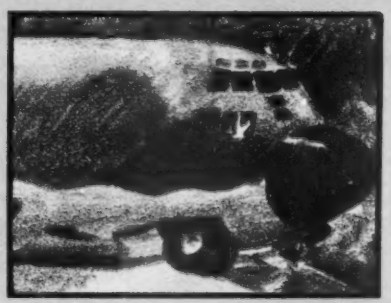

page 4

page18

FEATURES

4 **You're the Boss**
He'd lost his dignity, but saved the airplane!

8 **Safety Workhorse—The FSO**
The how and why of HATRs.

13 **Attention!**
Part II.

16 **MAC Safety Award Winners**
The best of our best.

18 **It's Not Always Luck**
Mac MacKenzie remembers near-mishaps.

21 **A Twilight Trip**
A list of famous last words.

25 **Say What You Mean—Effectively!**
Aircrew communication.

27 **Safe Professionals in the Field**

DEPARTMENTS

7 **Flying Hour Milestones**

11 **Excellence in Airmanship**

28 **Quick Stoppers**

31 **After Deadlines**

The MAC Flyer is published by the Director of Safety, Military Airlift Command. The contents are informative and not regulatory or directive. Names of people and places in mishap stories are representative and not necessarily of the aircraft or equipment involved. Information in any article may not be construed as incriminating under Article 31, UCMJ.

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STOP! DON'T JUMP!!!

There's no reason to take *drastic* action! Granted, time is getting a little short to submit your entry to the 1987 MAC Flight Safety Writing Contest; but don't despair! If you hurry, you still have time to shake the dust off your trusty writing tablet, sharpen your crayons, and set to parchment your most notorious flight safety ode. Just make sure you follow the guidelines set forth below in *THE RULES* and the heavy burden of brinksmanship will be lifted from your shoulders. However, *make sure your don't wait any longer*—the deadline for submission is 31 March 1987.

Just think, instead of taking a long walk off a short "T" tail, you'll be basking in the glory of your hidden literary talents and reading your complimentary, one-year supply of *TMF* magazines (a small token of our appreciation to you for just *entering* the contest). When you *win*, you'll receive either a handsome wall plaque or an engraved desk set. So, don't delay, send us *your* submission *today!*

THE RULES

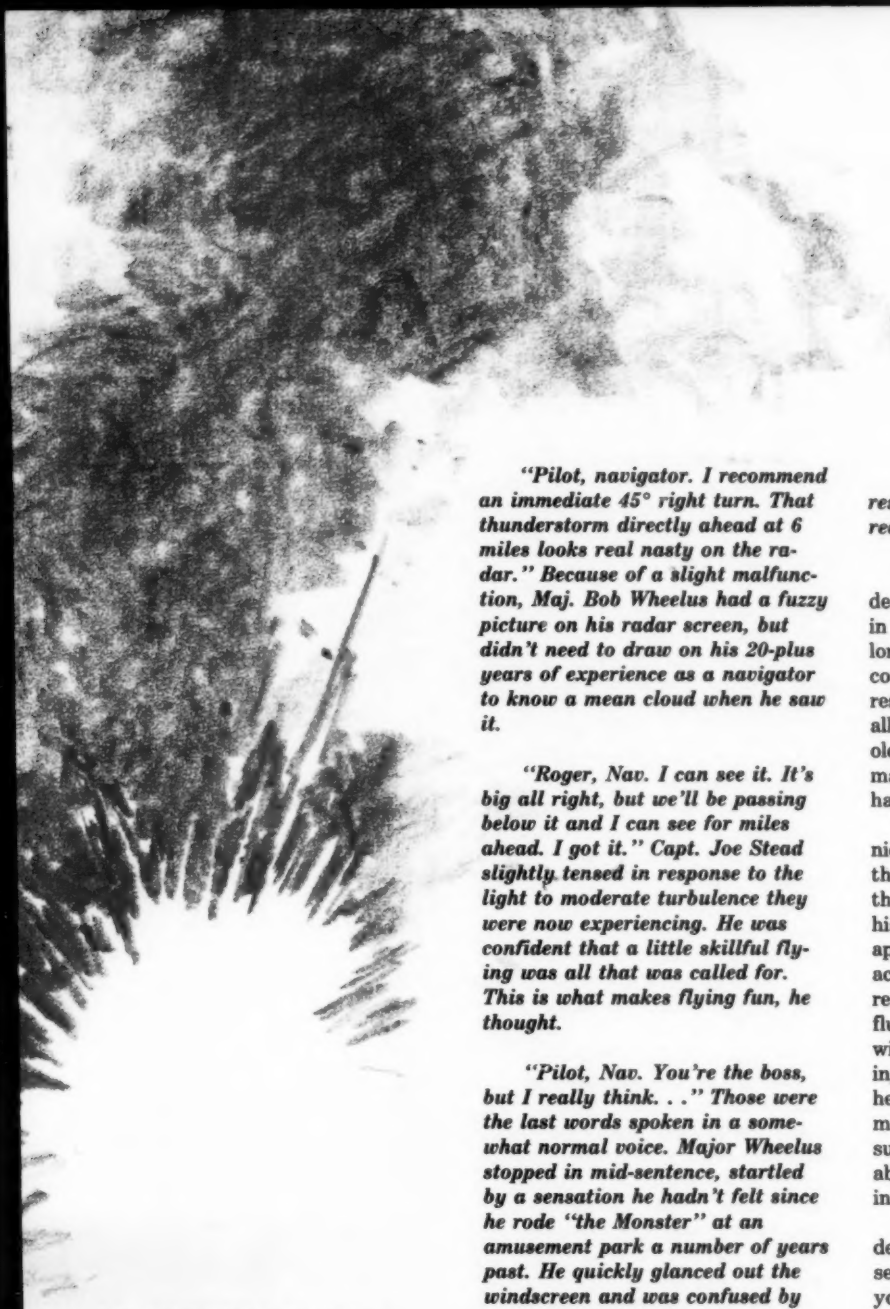
The 1987 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. All entries must be original, unpublished and postmarked no later than 31 March 1987. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages). Poetry should be about 75 to 100 lines. Entries must contain an *aviation safety/mishap prevention message.* Manuscripts must be double-spaced, typed and submitted in two copies. Identify entries by title only and attach a cover sheet showing the author's name, address, duty phone number and unit. The cover sheet must contain a brief autobiography.

The contest is open to anyone. Entries qualifiying under the above rules earn their author a free one-year subscription to *The MAC Flyer.* However, contest prizes (desk sets and plaques) may only be awarded to military members and civilian employees of the Department of the Air Force or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a special category. All winning stories will be published in *The MAC Flyer.* Entries should be addressed to:

Flight Safety Writing Contest
HQ MAC/IGFE
SCOTT AFB, IL 62225-5101

You're The Boss

I don't think I'll ever fly with this guy again.



by Major Paul C. Robertson
438 ABG, McGuire AFB, NJ

"Pilot, navigator. I recommend an immediate 45° right turn. That thunderstorm directly ahead at 6 miles looks real nasty on the radar." Because of a slight malfunction, Maj. Bob Wheelus had a fuzzy picture on his radar screen, but didn't need to draw on his 20-plus years of experience as a navigator to know a mean cloud when he saw it.

"Roger, Nav. I can see it. It's big all right, but we'll be passing below it and I can see for miles ahead. I got it." Capt. Joe Stead slightly tensed in response to the light to moderate turbulence they were now experiencing. He was confident that a little skillful flying was all that was called for. This is what makes flying fun, he thought.

"Pilot, Nav. You're the boss, but I really think. . ." Those were the last words spoken in a somewhat normal voice. Major Wheelus stopped in mid-sentence, startled by a sensation he hadn't felt since he rode "the Monster" at an amusement park a number of years past. He quickly glanced out the windscreen and was confused by the unusual attitude of the aircraft. Then, what?—an aircraft wing appeared to be flying formation with them and then disappeared from view.

"Critical airframe damage resulting from severe turbulence" read the accident report.

Major Wheelus was a self-described "old timer," a navigator in tactical "trash-haulers" for as long as anyone, including himself, could remember. He was greatly respected in the squadron for his all-encompassing knowledge of the old Herky-birds. He could detect a malfunction almost before it happened.

"Wheely," Major Wheelus' nickname, was a special favorite of the newer aircraft commanders in the squadron. He didn't try to use his rank or expertise to make them appear stupid or naive. That was no accident. Major Wheelus long ago realized that his chances for influencing a brand new AC increased with soft persuasion, not ego busting terseness. "You're the boss," he'd say in a cool, mellifluous tone, more often than not followed by a suggestion which was almost invariably followed by the young captain in the left seat.

"Be sure to get your Master's degree; there's an Air War College seminar starting next month that you can get in; what you need is more staff experience." These were the exhortations of Wheely's friends and supervisors. "You can't get promoted without your ticket being punched," they'd said. Wheely

HONORABLE MENTION 1986 MAC FLIGHT SAFETY WRITING CONTEST

didn't care. He wanted to fly, and he was happy. It wasn't his fault that his weak-eyed parents passed on weak-eyed genes. He had always wanted to fly, and realized early that he couldn't pass the pilot physical requirements. No problems, no rancor, he was happy.

"Major Wheelus could also be distinguished as an old-timer by the Purple Heart conspicuous on his five rows of ribbons. It had happened, he remembered, at Khe Sahn, just after the airlifter turned off the runway onto the narrow taxiway. "Ka-Boom." Wheely had looked out the windscreen to see a spray of dirt perhaps a football field away. "Kaboom." "Kaboom." What the dickens, he had thought, those seem closer! Suddenly he had realized what was happening.

"Pilot, Nav," he had said over the interphone.

"What?" The pilot was concentrating on avoiding the mess of pallets and supplies strewn along the side of the taxiway.

"You better shut 'em down," Captain Wheelus had said with some emphasis. The flight engineer was already opening the crew entrance door. Captain Wheelus was the last one out of the airplane. Just as he hit the dirt in a ditch about 30 yards away, the whole world seemed to explode. A piece of something—shrapnel, airplane—came flying by and ripped his flight suit near the shoulder. After they were safely escorted to the bunker by a grimy Marine, the copilot had noticed Wheely's torn and bloody flightsuit. Actually, the wound wasn't much more than a long surface scratch, but it was received in combat, and that was enough to merit the Purple Heart, worn proudly alongside the Air Medals and Distinguished Flying Crosses.

Then again, another time, he had certainly deserved something, but didn't get anything except a bad case of nerves, when he went back to relieve himself and saw the paper cup turned upside down on the ledge above the urinal. As he curiously started to pick it up, he was confused to see what looked like a grenade stashed underneath. His confusion quickly turned to horror as he realized he was standing there with a booby trap in his hand and just as quickly shoved the cup back down against the ledge. And there he had to stand, ignominously, with flight suit unzipped, until the AC sent the flight engineer down to see what had happened to him, and then until the aircraft was oh-so-delicately landed at the nearest emergency field and the ordnance disposal team arrived. He had lost his dignity, but had saved the airplane!

But that was all in the past. Now he was, quite simply, the very best navigator in the squadron. And even though his career was quickly coming to an end, he was happy. He had never married, preferring instead the special missions to remote corners of the world for which he could volunteer at a moment's notice. He was a true old-timer. He had also saved a bundle of money in his career and had invested it wisely. He loved flying, but the life of leisure he would lead upon retirement, at age 44, didn't seem so bad either. Maybe he would even go back to school, get a law degree, who knows!

Wheely was one of the most tractable and pleasant human beings anyone would ever meet. He liked almost everyone, he liked almost everything, and almost everyone liked him. But there was one person he didn't like, and that was Captain Stead. Wheely had seen cocky, egotistical young aircraft commanders before. They came and went like the seasons, noted for their aggressiveness. A relatively quick upgrade, maybe even through Stan Eval, a staff job, a commendation medal, and they were on to further horizons.

But there was something Wheely didn't like about Captain Stead. He couldn't quite find the word—stubborn, intractable, intransigent were close. Stupid? he thought. No, that's too harsh. Still, he almost got us lost on the last low-level mission by insisting he knew exactly where we were when in fact he didn't, and I did.

Major Wheelus also noticed Captain Stead's impatience during the weather briefing that morning.

"Do you have any questions?" the briefer had asked.

"No, thanks," said the captain as he grabbed the pile of papers on the counter and wheeled about.

"I'll be with you in a minute," Major Wheelus had stated as Captain Stead disappeared through the door. "Now, tell me some more about that line of severe thunderstorms you're expecting to develop along our low-level leg" he'd asked, turning back to the weatherman.

Damn, thought Major Wheelus as the aircraft held for clearance onto the runway. I still can't find the right words for this guy— arrogant, overbearing, supercilious, no, still not exactly correct. Oh, well, it doesn't really matter. The scheduler told me long ago that all I had to do was say the word if there was anyone in particular I didn't want to fly with. I don't think I'll ever fly with this guy again.

He never did.

Major Robertson has navigated in MAC C-133s and C-5s. He's served as a 21AF flight planner and is presently Chief, Airfield Managment, McGuire AFB, NJ.

Flying-Hour Milestones

10,000

Lt Col William C. DeFreeze, 76 MAS
SMSgt James E. Webster, 327 TAS
MSgt William Bennings, Jr., 317 TAS

5,000

Col John E. Haseltine, 443 MAW/CC
Lt Col Terry C. Cox, 9 MAS
Lt Col Paul D. Golden, 327 TAS
Lt Col Larry W. Harris, 36 TAS
Lt Col Wayne D. Larson, 105 MAG
Lt Col Dan K. McKenzie, 327 TAS
Lt Col William J. Quinn, 327 TAS
Maj Eugene K. Allen, 327 TAS
Maj David M. Anderson, 9 MAS
Maj John C. Chambers, 327 TAS
Maj Robert T. Draper, 327 TAS
Maj James E. Duffield, 53 WRS
Maj John E. Huber, 9 MAS
Maj James D. Lawrence, 39 ARRW
Maj David M. Miller, 732 MAS
Maj James R. Reisenger, 9 MAS
Maj Ronald L. Roberts, 62 TAS
Maj Kenneth L. Ryngala, 327 TAS
Maj Carl J. Smith, 9 MAS
Capt Nolan I. Berg, 62 TAS
Capt Richard C. Novak, II., 9 MAS
SMSgt Charles S. Alexander, 36 TAS
SMSgt Daniel K. Brown, 8 MAS
SMSgt Floyd Currie, 36 TAS
SMSgt Robert R. Gabel, 36 TAS
SMSgt William M. McKay, 327 TAS
MSgt Robert L. Buss, 36 TAS
MSgt Gene Carmack, 56 MAS
MSgt William G. Esler, Jr., 327 TAS
MSgt James H. Frink, 15 MAS
MSgt James R. Holloway, 732 MAS
MSgt William F. Parrish, 707 MAS
MSgt Stanley J. Richardson, 36 TAS
MSgt George C. Ricketts, 327 TAS
MSgt Richard W. Thompson, 9 MAS
MSgt Richard C. Zimmerman, 327 TAS
TSgt Byron D. Butler, 327 TAS
TSgt Ronald N. Howdershelt, 9 MAS
TSgt Richard A. Teal, 8 MAS
SSgt Calvin D. Fain, 8 MAS
SSgt Bruce D. Jackson, 8 MAS
SSgt Ernst F. Jones, Jr., 62 TAS
SSgt Clifford B. Matson, 8 MAS
SSgt Joachin N. Moore, 76 MAS
Sgt Timothy L. Frye, 8 MAS

2,500

Lt Col Michael L. Scott, 834 EMS/CC
Maj Harold Tiahrt, II., 41 ARRS
MSgt Patrick A. Sinon, 31 ARRS

Ranks and units are those at time of award. See MACR 900-3 for details on how to apply for your own milestone award.

When Near Midairs and other things scary affect your flight.

by Lt. Col. Michael G. May
and
Capt. Donald L. Rosenberry

We're off and running now! We hope you've fully digested the past two articles (Jan and Feb 87 *TMF*) without requiring undue quantities of antacids. If you didn't see them, it might be worth your while to track down a copy of each and begin collecting the complete set of 12 articles. If we do our job right, these will be very helpful for your flight safety program (useful to FSOs) and enlightening for all other crewmembers and support personnel. Now on to the HATR (that's Hazardous Air Traffic Report to the uninitiated).

Hazardous Air Traffic Reports are covered by one of the 127 series regulations (the safety regs), specifically AFR 127-3. If you have one handy, go ahead and pull it out while we're talking about it; one thing you'll undoubtedly notice right away with delight—it's short. Since you have it out now, go ahead and check it against the O-2, and make sure you have all the changes, IMCs, and sups. Before we even get into the body of the regulation, we can glean some important information from the introductory remarks. HATRs are *not* privileged information. Surprise! Everything you discover during a HATR investigation can be released outside the Air Force, with the exception of the identity of the people involved. This is a rather distinctive difference from the other safety investigations. This means you don't put the LIMITED USE, PRIVILEGED, or FOUO statements at the start of your HATR messages. Okay, it's definition time; just which events are reportable, and which aren't?

Events that occur in air traffic or aircraft operations are reportable as HATRs. That's sort of broad you say? Well then, let's get more specific with a couple examples.

Incredibly lifelike example number one. You're flying along and all of a sudden another fantastic flying machine is about to make major in-flight modifications to your aircraft. You bank hard right to avoid the uninvited intruder. You need to file a HATR for this Near Midair Collision (NMAC). (Parenthetical history trivia—this is relatively new terminology. Many moons ago we'd have called this a "near-miss," but then someone thought: Hey, a near-miss is actually a hit, hence the change.)

Incredibly lifelike example number two. Center just gave you a vector to avoid traffic, but you're deeply involved in an intracockpit discussion about the upcoming approach. You neglect to turn and become a hazard to some other aircraft as the separation between you closes to "less than required." A HATR should be filed on this one, too. (While we're here, check out paragraph 1a—immunity from disciplinary action.)

Incredibly lifelike example number three. You're flying along with the INS (for those of you lucky enough to have one) tied to a set of coordinates for a particular navaid. However, your aircraft is definitely *not* heading in the right direction, according to the VOR data. When you discover the coordinates published are incorrect, you again have the material for a HATR.

Here's one last incredibly lifelike example for the road. You're on final, and cleared to land, when you notice someone is taxiing *their* aircraft onto the runway. After a quick

HAZARDOUS AIR TRAFFIC REPORT (HATR)

(THIS FORM IS SUBJECT TO THE PRIVACY ACT OF 1974—SEE ITEM 22 ON REVERSE)

REPORT CONTROL SYMBOL

INSTRUCTIONS

This form is to be completed by the individual initiating the report. This report is required for all reportable conditions identified in AFR 127-3. Complete all appropriate portions of the form. If pertinent data are not available, make an appropriate comment in the narrative. The safety office investigating the occurrence will complete those portions that cannot be filled in by the reporting individual. Turn in the report to the nearest USAF Safety Office or Base Operations. If circumstances make this impractical and communications permit, information may be transmitted to the safety office of the base where the hazardous condition occurred or to home station. Due to the perishability of air traffic control records, this report should be processed as soon as possible. Priority precedence is appropriate.

1. CONDITION REPORTED

☐ NMAC ☐ AIR TRAFFIC SERVICES ☐ PILOT PROCEDURES ☐ NAVIGATIONAL AIDS ☐ OTHER *(Specify)*

☐ PUBLICATIONS/DIRECTIVES ☐ COMMUNICATIONS ☐ FLIP/NOTAMS

2. DATE AND TIME OF OCCURRENCE	YEAR	MONTH	DAY	TIME *(L)*	☐ DAY	☐ NIGHT	☐ DAWN/DUSK

3. LOCATION		RADIAL AND DME	FROM *(Facility ident and airport)*	ICAO IDENT
	OR	POSITION	ON *(Airport)*	ICAO IDENT

4. ALTITUDE/FL	5. TYPE OF AIRSPACE *(ATA,TRSA,MTR, etc.)*	6. KIAS	7. WX CONDITIONS AT FL ☐ VISUAL ☐ INSTRUMENT	8. FACILITY RECEIVING AIRBORNE REPORT AND TIME *(L)* RECEIVED

FACTUAL DATA *(Aircraft 2 is other aircraft involved)*

AIRCRAFT 1	AIRCRAFT 2
9. TYPE/MODEL/SERIES	9. TYPE/MODEL/SERIES ☐ UNKNOWN
10. IDENTIFICATION/CALL SIGN	10. CALL SIGN/DESCRIPTION ☐ UNKNOWN
11. MAJCOM, UNIT AND HOME STATION	11. MAJCOM, UNIT AND HOME STATION
12. AIRDROME OF DEPARTURE	12. AIRDROME OF DEPARTURE
13. DESTINATION AIRDROME	13. DESTINATION AIRDROME
14. FLIGHT PLAN ☐ IFR ☐ VFR ☐ DVFR ☐ SVFR ☐ NONE	14. FLIGHT PLAN ☐ IFR ☐ VFR ☐ DVFR ☐ SVFR ☐ NONE ☐ UNKNOWN
15. COURSE/HEADING/ROUTE	15. COURSE/HEADING/ROUTE
16. CONTROLLING AGENCY	
NAME ☐ NONE	NAME ☐ NONE ☐ UNKNOWN
☐ USAF ☐ FAA ☐ USA ☐ USN ☐ HOST NATION ☐ OTHER ☐ GCA ☐ DEP CON ☐ ARTCC ☐ RSU ☐ GCI ☐ APP CON ☐ TOWER *(VFR)* ☐ RBS	☐ USAF ☐ FAA ☐ USA ☐ USN ☐ HOST NATION ☐ OTHER ☐ GCA ☐ DEP CON ☐ ARTCC ☐ RSU ☐ GCI ☐ APP CON ☐ TOWER *(VFR)* ☐ RBS
17. AIR TRAFFIC SERVICES	
RADAR SERVICE ☐ NONE ☐ MONITOR ☐ VECTORS	RADAR SERVICE ☐ NONE ☐ MONITOR ☐ VECTORS
TRAFFIC ADVISORIES ☐ YES, TOO LATE ☐ YES, NO JOY ☐ NO	TRAFFIC ADVISORIES ☐ YES, TOO LATE ☐ YES, NO JOY ☐ NO
RADAR AUTOMATED DATA PROCESSING ☐ YES ☐ NO	RADAR AUTOMATED DATA PROCESSING ☐ YES ☐ NO

18. FLIGHT ACTIVITY *(Check all applicable)(Aircraft 2 is other aircraft involved)*

AIRCRAFT 1 2	AIRCRAFT 1 2	AIRCRAFT 1 2	AIRCRAFT 1 2
☐ ☐ TAXI	☐ ☐ CRUISE	☐ ☐ FINAL APPROACH	☐ ☐ DESCENT TO *(Alt)*
☐ ☐ TAKEOFF	☐ ☐ HOLDING	☐ ☐ LOW APPROACH	☐ ☐ CLIMB TO *(Alt)*
☐ ☐ LANDING	☐ ☐ MTR	☐ ☐ MISSED APPROACH	☐ ☐ SID *(Name)*
☐ ☐ DEPARTURE	☐ ☐ FORMATION	☐ ☐ TFC PATTERN *(VFR)*	
☐ ☐ ARRIVAL	☐ ☐ TACTICAL *(Refueling, ACM, etc.) (Specify)*	☐ ☐ ACROBATICS	☐ ☐ INSTRUMENT APPROACH *(Name)*
☐ ☐ ENROUTE			
☐ ☐ PREFLIGHT			☐ ACTIVITY UNKNOWN

AF FORM MAR 83 651 PREVIOUS EDITION IS OBSOLETE

review of physics (that part about no two objects occupying the same space) you feel you can't wait any longer to go around. You bet! One more example for the reportable stack.

Safety is certainly the cornerstone of the system relating the aircrew and air traffic control. It takes constant vigilance from both aircrew and controller to keep flight operations from disaster. That's what HATRs help us do—identify weaknesses in the system so we won't have a disaster. These reports are important even if the immediate problem is fixed. The same fertile ground which spawned *your* air traffic problem might exist somewhere else. The HATR can help identify it so someone else doesn't have to relive your "moment of sheer terror." On the other hand, the same thing may already be happening elsewhere; a trend we can identify through reports. Federal Aviation Regulations (FARs) can be affected when we all know and use the HATR criteria. In fact, HATR data contributed to development of the new ARSA. Be sure to file one when events fit the criteria (found in . . .). Now that we've covered the definitions, let's look at procedures.

We're going to look at procedures from a couple of different viewpoints, first from the aircrew's. When you decide to submit an AF Form 651 (you get three guesses what a 651 is), one of your most important actions is to tell the controlling ATC facility you intend to file a HATR. No, the purpose of this is not to make the controller shiver in his/her boots, therefore illiciting better service to you, but instead to initiate necessary actions to save tapes covering the incident. Otherwise, tapes are routinely erased (taped over) within 15 days. Also, this will start the ATC process of investigation as the shift supervisor is called in to take statements and other actions as necessary. The next thing you should do when submitting a HATR is record pertinent information, i.e. time of day, radio frequency, type and tail number of the other aircraft, or whatever data is applicable to your situation. Make sure someone on the crew has the information written down for later translation to the right forms. It's important to jot this info down right away before the grey matter lets it slip away to oblivion. The next step is to file the HATR at the first opportunity, using the most readily available means of communications (smoke signals were excepted in the latest change to the FARs). It should be filed at a U.S. Air Force Base Operations or safety office at the arrival airport, or told to the safety office at the base where you had the problem. The goal is to get the information into the hands of an Air Force safety officer as expediently as possible. This can be a real trick overseas—use whatever is necessary to get the HATR filed, same way you'd file a flight plan.

The person receiving the form will determine who's to make the investigation using the rules in the regulation. (As a side note, there *are* areas in the world where MAC flies the rules don't cover. We know about this and are working the problem.) Now that you've submitted the report, you get to sit back and wait for your expeditious answer. The safety officer receiving the form has the ball now.

If you're the one holding the piece of paper, you're the safety officer of which we spoke. "Time is of the essence" is the way the legal beagles tell us when it's real important to work fast. Such is the case with a HATR investigation. Make sure your secretary (if you're so blessed) starts a corrective action folder right away so you can begin filing documents immediately—so they won't get lost. The MAC Form 151 is a good one to start with. Log sigificant events in your investigation along with names, phone numbers, and a suspense for who or what you're waiting on so your cohorts can pick up the investigation in your absence and keep it moving. The investigating safety officer should contact the Chief of Air Traffic Control Operations (CATCO), ATC staff officer, or FAA Air Traffic Representative, as appropriate. Chances are, he/she will have the investigation well under way already. It's a good idea to personally review tapes even though a transcript should be made available. There's a lot in real life that can't be put into a transcript. You should have noticed by now that HATR investigations are a team effort. You and the ATC representative are mutually interested in finding out the problem before it affects someone else. While we're talking about things you should do yourself, how much do you know about FARs?

Chances are, unless you have a private ticket (or higher) with FAA, you haven't perused them very much. If you want to do the job right on your HATR investigation, you need to know quite a bit about FARs. You should become familiar with not only rules for throttle jockeys, but also those governing actions of the scope watcher. You'll find them . . . uh, interesting. It'll make you a better crewmember and a much better safety officer. So, now that you've heard the tapes, gotten the CATCO's inputs, and talked to all appropriate people, you're ready to send out a message.

The first one needs to be on the wire in the first 4 workdays, with supplementals every 30 days until the investigation is complete. If you followed our earlier advice/suggestion about alacrity, you could conceivably turn out your final report on Day Four. Good luck, but don't cut your investigation short for speed. Now you're in the final phase of this momentous event—it's time to notify the originator, through their unit, of corrective action taken or recommended. Here's one of those opportunities for you, a salesman in the commodity of safety, to *sell* your product. Imagine you're in the marketing division of your company. You're responsible for packaging and the sales pitch. If you expect people to buy your product, you must do an effective job advertising. Anytime you communicate to others about safety, remember—you're responsible for selling safety, not just communicating. In your response to the originator's unit, take the opportunity to make the whole unit feel good about being safety conscious. We would do well for our command to ensure safety is associated with success, successful people, and positive attitudes. One last point and you'll be on your own to do battle with the cold cruel world of HATRs. *Follow up.* Yes, that is a complete sentence, because the understood subject is *you.* Once again, you'll need to get out of the office and "check it out." Make sure procedures put in place are really there and working. Having done all this, you will indeed have made a rich contribution to the safety of flight operations in MAC. Go get 'em! See you next month. ✈

Excellence In Airmanship

From Left to Right: Capt. Douglas D. Lehman, 1st Lt. Gary D. Grayson, Sgt. Levy Riley Jr.

Capt. Douglas D. Lehman and Crew, 435 TAW, exhibited exceptional professional skill and airmanship in responding to a C-9A inflight emergency during a medevac flight in Turkey on 4 October 1986. The emergency occurred on the third leg of a patient evacuation mission that originated at Rhein-Main AB, Republic of Germany, earlier in the day and which had already transited Athinai Airport, Greece. The first two legs were uneventful. On the third leg, the aircraft was scheduled to depart Cigli Airport at Izmir, Turkey, and fly to Ankara, Turkey, with 40 passengers on board. Taxi and takeoff were normal. However, just after takeoff, passing 983 feet AGL, and in a clean configuration, the aircraft unexpectedly yawed left, the nose started to drop, and a high frequency vibration started that shook the entire airframe. The crew brought the aircraft under control using rudder and aileron. Suspecting a problem with the number-one engine, the crew initiated a climb to 2,000 feet MSL and ran the inflight engine failure checklist. When the aircraft commander brought the number-one engine to idle, the vibrations diminished somewhat. Because the engine exceeded temperature limitations and the vibrations persisted, though less severe, Captain Lehman elected to shut down number one engine. After declaring an emergency with the controlling agency, the crew prepared to fly a single-engine recovery, an unsettling prospect compounded by its sudden and unexplained onset, the lack of a precision approach into Cigli, and the presence of patients and passengers on board. Anxious Turkish controllers repeatedly asked the crew to describe their problem and their intentions, adding to the crew's workload. As the engine continued to windmill, the crew felt the continued worrisome vibrations. Then, after a smooth approach, the engine seized completely just as the aircraft flared, triggering numerous warning lights and annunciators in the cockpit. The crew managed an uneventful landing and taxied to parking where the patients and passengers were led from the aircraft unharmed. Postflight inspection revealed numerous burnt, bent, or missing turbine blades, and deposits of molten metal in the tailpipe and on the thrust reverser fairings. The cause of the turbine failures is under investigation awaiting results of a teardown analysis. The crew's superb performance in dealing with an unusual C-9A emergency resulted in its uneventful termination while preventing injury to patients and passengers. The *TMF* staff extends its congratulations for a job very well done.

From Left to Right: Capt. James E. Manley, 1st Lt. Jeremy J. Rentschlar, Sgt. William P. Carden

Capt. James E. Manley and Crew, 10 MAS, displayed outstanding airmanship during a mission on 25 March 1986. While en route from Zweibrucken AB, Germany, to RAF Mildenhall, UK, the pilots were unable to move the elevator when they attempted to level the aircraft at FL 100. Captain Manley assumed control of the aircraft and confirmed the elevator was frozen in position. They attempted to regain aircraft control using pitch trim. This proved ineffective. Captain Manley banked the aircraft to attain level flight. Both pilots applied forward pressure to the control yoke and succeeded in regaining partial elevator control, approximately 2" forward and 1" aft. Lieutenant Rentschlar declared an emergency and coordinated a block altitude in which to determine the full extent of elevator restrictions and aircraft response. The crew slowed the aircraft to 140 knots and conducted a controllability check. They determined there was insufficient elevator authority to flare the aircraft in the standard 35° (full) flap landing configuration. They elected to perform a 15° flap approach and landing. Lieutenant Rentschlar coordinated with approach, received vectors to ILS final, ran descent and before landing checklists, and inhibited the flap warning system. Sergeant Carden briefed the passengers, referenced flight manual items, and assisted in computing performance data. The final approach progressed normally until the flare, when the elevator again stuck at the neutral position. Captain Manley applied power to arrest the sink rate and safely landed the aircraft. Post-flight investigation revealed ice accumulations on the unprotected surfaces of the aircraft had lodged in the space between the elevator and horizontal stabilizer. Additionally, ice had accumulated on top of the unprotected elevator.

Captain Manley, Lieutenant Rentschlar, and Sergeant Carden's quick analysis and immediate actions averted a potential disaster. While C-23A Dash One emergency procedures do include a section on landing with elevator trim only, in this situation, the crew found elevator trim ineffective in controlling aircraft pitch. Their selection and use of a 15° flap approach and landing, something not normally practiced, was innovative and insured optimum landing configuration for the frozen elevator. This aircrew's decisiveness and airmanship are well-deserving of this prestigious award. ★

It's easy to stop paying . . . Attention!

One facet of flying causing pilots great frustration is; there is rarely enough time to correct for errors caused by inattention. As part of the human/machine control loop, which includes a number of continuously changing variables, the pilot has a task to perform which is paced by stringent, real-time requirements. This often taxes his ability to pay sufficient attention to all the variables in any situation. The result can be enough stress to overtax the pilot's attention capability and cause severe attention failures. Before looking in depth at the different types of attention failures, let's look at three of the most important requirements imposed on the pilot.

- **Maintain Communication Channels Between Pilot and Aircraft.** Limitations of the focus of attention make it the greatest roadblock in transmission of information from the machine portion of the control loop to the pilot. Despite numerous sensory receptors in the skin and body and the wide range of stimuli these receptors can interpret, the information they collect *has* to come into the focus of attention in a serial fashion. Unfortunately, the real world doesn't always operate in a serial fashion.

- **Detect Emergency Indicators.** In this case, the pilot may have learned the requirements of his job so well that he knows where all such indicators are located and is duly prepared to observe them. Yet, the number of mishaps every year due to failures of attention suggests this preparation is inadequate. Emergency indicators have to attract an aviator's attention at the proper time, and in time for him to take appropriate action to influence the course of events. The effectiveness of many emergency indicators is often greatly reduced by the competition they face from a multitude of other indicators and information.

- **Real-Time Functioning.** The phrase "real-time" means that processes or events are being controlled while they are occurring. This is yet another restriction on attention because the pilot must sample the status of a maneuver, compare the sampled information with standards specifying what the status should be, decide what action to take, and take proper action in time to have the desired effect. A delay in any part of the sampling/action process may ultimately lead to disaster if a point is reached where recovery is impossible.

- **Failures of Attention in Flying.** One definition of attention failure is: "The pilot fails to respond adequately to a clearly defined stimulus situation in spite of the fact that all cues are present and proper response is well known to him." Mishap files are replete with examples of consequences of attention failures. One aviator tried to take off in a helicopter that was still tied down. Another became so busy with routine procedures after takeoff, he failed to notice the aircraft was losing power and altitude.

- **Causes of Attention Failures.** The most basic cause of attention failure is simple overload: Too many stimuli presented and too many responses required. Overloading was discussed in Part I of this series in relation to division and span of attention. Aircraft designers are constantly trying to remedy this problem with improvements in the design of aircraft instruments and controls.

Other factors, such as fear and anxiety, tend to narrow an individual's range of attention, often materially reducing his or her "channel capacity." This is a phenomenon most often related to strong emotional arousal; men involved in physical combat often are not aware of minor wounds until after the fight is over. Narrowing of attention is also a well-known accompaniment of rage and intense anger. Narrowing is strongest when emotion is strong. The mild tenseness which is a normal part of flying probably makes the aviator more alert than when he is on the ground.

With the large number of people involved in flying, it's not surprising that some would exhibit some form of compulsive behavior. These compulsions may be developed as ego-defenses against some real or imagined danger in flying, or they may bring their compulsions with them. In either case, the need to make a compulsive response can intrude upon the pilot's consciousness, occupying the focus of attention and impairing ability to make the proper response or scan the proper instruments.

Mental blocks and mental lapses can also cause attention failures. They are usually defined as mental processes which, although begun, cannot be completed. Everyone has experienced not being able to think of a very familiar name or event. This is a memory block and usually can be broken after a few minutes of concentration. Similar blocking sometimes occurs in the case of an ongoing mental activity. This is called a mental lapse since it does not seem to be the result of difficulty in recalling. During this time the individual cannot carry through the act he has begun. Mental lapses usually are very short and, in fact, usually pass unnoticed. However, they sometimes last long enough to be disruptive to highly skilled performance, and under these circumstances they can cause failures of attention. During the interval of the lapse, an individual cannot pay adequate attention and after the lapse he may be momentarily confused or "out of pace" with rapidly transpiring events.

- **Kinds of Attention Failures.** So far as flying is concerned, attention failures can be classified as *inattention*, *attention fixation*, and *fascination*. Inattention is basically attention to the wrong stimulus. In situations in which too many stimuli and too many responses have to be crowded into too short an interval, attention may be directed to the wrong stimulus. Its usefulness as a cue to the condition of the aircraft or for an appropriate controlling response is past. In other situations, the pilot may pay attention to irrelevant factors in the situation, either because of poor training or because relevant information is not made available to him in the proper form for interpretation. Inattention is usually the result of daydreaming or of neurotic conflicts which preempt the focus of attention. Attention must constantly be directed to the task at hand, and is continually assaulted by distracting stimuli, both in the immediate environment and from the individual's past experience.

Attention fixation occurs when a pilot concentrates on one set of stimuli to the exclusion of others. Fixation can result from inadequate attention control training. It's been observed time and again in emergencies which precede mishaps. In these situations, there is a very strong motive to escape from the threatened catastrophe. In this case, the pilot or other crewmember may fixate on the escape route which seems most obvious at the moment, but which may, in fact, be the least desirable. For example, some emergency situations can be handled more safely in the air than to attempt an abort late in the takeoff roll.

Attention fascination is similar to fixation. In this failure, the pilot *perceives* all significant portions of the situation but still fails to make the proper response. Although he is aware of the situation, and may realize its danger, he feels detached from it, as though it were unreal, or as though he were observing it from "outside;" events do not seem to have personal significance. Attention fascination can occur in what might be called normal flying but it's most characteristic of extremely stressful situations in which the threat of death is very real, and in which control of the situation has already been lost to a large extent. Aviators in World War II reported this sensation during bombing missions against heavily defended targets.

- **Reducing Attention Failures.** It's obvious that attention is a critical but unreliable link between man and machine. Its functioning cannot be taken for granted and its capacity as an information channel is limited. Yet, much can be done to improve the capacity, stability, and reliability of this link.
- **Improve Critical Indicators.** The need for successful attention getting devices was stated earlier. Aircraft instrument designers are constantly trying to improve and simplify both normal and emergency indicators. The fundamental problem is still the human who is supposed to perceive the warning. There will always be occasions when warning indicators will be ignored. Even the best possible indicators are confined to the machine side of the link.
- **Improve Habits of Paying Attention.** In Part I of this series, overlearning, integration, and rapid shifting were discussed as functions used to improve an individual's information sampling capacity, that is, to enable him to keep track of more things and make more responses than otherwise possible. Integration of sampled information, as well as integration of responses, must be stressed in this regard. Present day instruments are designed to give the pilot a small fraction of information about the status of the airplane or about where he is. These small bits of information sometimes are not clearly related to what he actually needs to know and generally require interpretation and combination with other bits before the overall picture becomes apparent. Where does all this lead? It leads to the necessity to practice and hone flying skills every chance we get. Take advantage of all the simulator time you can get. It's a risk-free chance to learn how to integrate those fractions of information and the proper responses. 'Hand" fly as much as possible to exercise your skills, but rely on the autopilot when there's a possibility you could get overloaded.
- **Teach Emotional Control.** We've mentioned several times that attention capability is dependent on the individual's emotional state. We can't completely control our emotional responses to certain situations, but we can keep in mind the strong relationship between emotion and attention. Knowledge of the attention degradation that stress and emotions can cause will go a long way in countering their effects.
- **Reduce Distractions at Critical Points in the Mission.** There are times, even under the best of circumstances, when the aviator is close to being overloaded. Analyze your mission with the objective of reducing distractions at those critical points. Get other crewmembers involved in the analysis. After all, they'll pay the same price you will for attention failures. ✈

Aviation Psychology

1986 MAC Safety

The MAC Trophy for Flight Safety

Presented to the MAC Air Force with the most effective flight safety program as determined by flight mishap rate and severity, mishap causes, and mission.

22d Air Force

MAC Flight Safety Achievement Award

Presented to wings and geographically separated units that are mishap-free and have an effective flight safety program during the award year.

Category One

62 MAW & 446 MAW (Assoc), McChord AFB
63 MAW & 445 MAW (Assoc), Norton AFB
89 MAW, Andrews AFB
374 TAW, Clark AB
375 AAW & 932 AAG (Assoc), Scott AFB
435 TAW, Rhein-Main AB
436 MAW & 512 MAW (Assoc), Dover AFB
437 MAW & 315 MAW (Assoc), Charleston AFB
438 MAW & 514 MAW (Assoc), McGuire AFB
443 MAW, Altus AFB
463 TAW, Dyess AFB

Category Two

10 MAS, Zweibrucken AB
40 ARRS, Hill AFB
316 TAG, Yokota AB
616 MAG, Elmendorf AFB
1400 MAS, Norton AFB

MAC Distinguished Flying Unit Safety Award

Presented to the best unit from among those receiving the MAC Flight Safety Achievement Award.

Category One

89 MAW, Andrews AFB

Category Two

40 ARRS, Hill AFB

MAC Support Safety Achievement Award

Presented to units designated or functioning as military airlift support squadrons/groups and mobile aerial port squadrons. Units selected must have exceptional quality of services and successful mishap prevention programs.

603 MASG, Kadena AB
611 MASG, Osan AB
628 MASS, Incirlik AB

y Award Winners

MAC Safety Officer of the Year Awards

Primary Duty

Capt. Thomas A. Farrier
89 MAW, Andrews AFB

Additional Duty

1st. Lt Steven M. Shepro
Det 10, 37 ARRS, F.E. Warren AFB

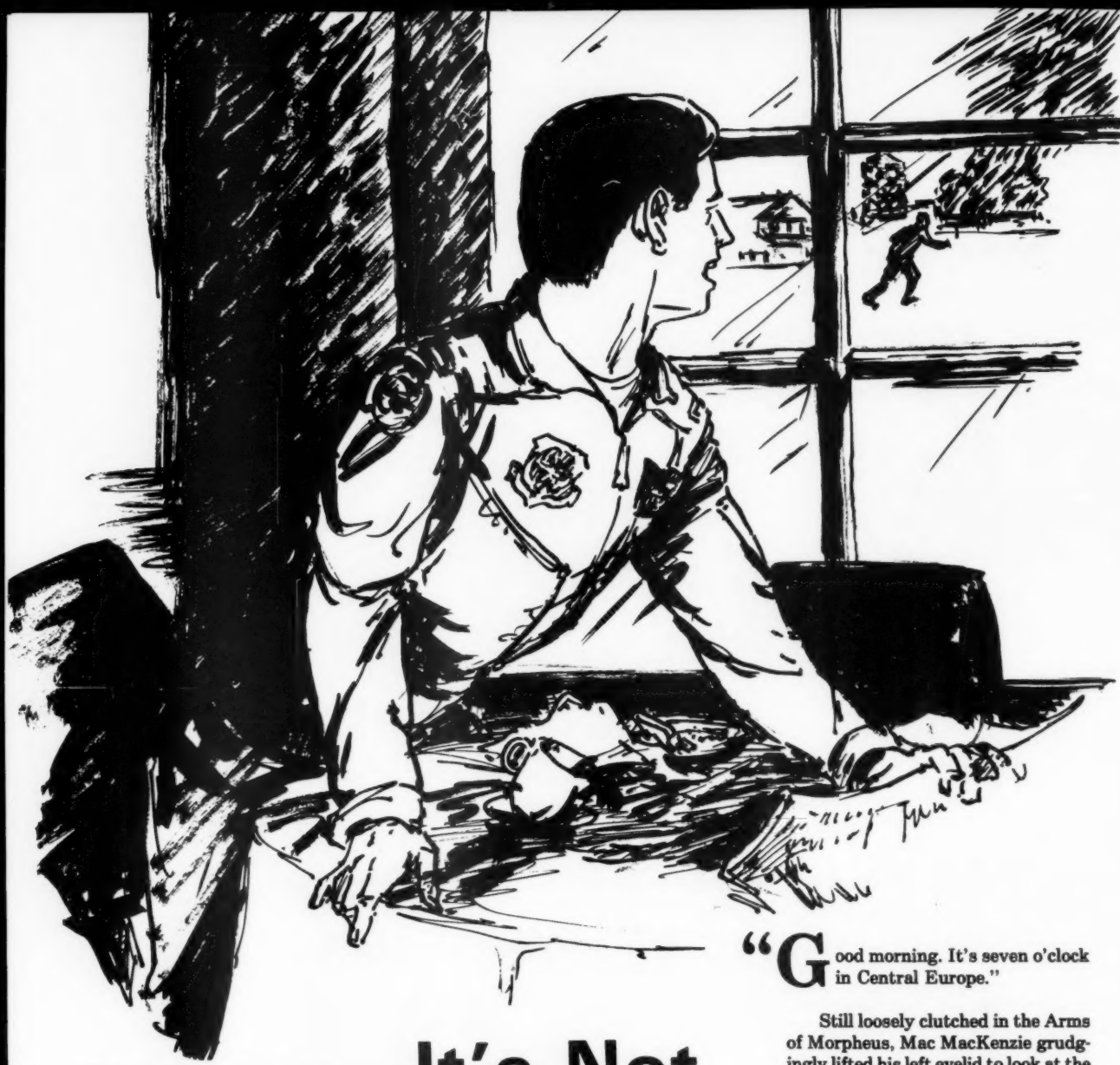
MAC Safety NCO of the Year Awards

Primary Duty

SSgt. Dwight R. Coleman
39 ARRW, Eglin AFB

Additional Duty

MSgt. Kenneth E. Hair
437 MAW, Charleston AFB



As you can see . . . It's Not Always Luck

"Good morning. It's seven o'clock in Central Europe."

Still loosely clutched in the Arms of Morpheus, Mac MacKenzie grudgingly lifted his left eyelid to look at the clock radio on the bedside table. The red LED numerals, viewed through the haze of half sleep, appeared as the malevolent eyeballs of a trio of Cyclops.

Where am I? he thought as his brain clicked from the sleep to the awake mode. Oh yeah, Ramstein. Feels like I just got in bed. I've been flying the Pacific too much. Flying east sure does mess you up more than flying west. I ache in places I didn't know I had. Well, a morning jog, a shower, and some breakfast should loosen things up.

After his run and shower, and ridding himself of some of the kinks caused by a longer than normal duty day after the previous morning's delayed east coast departure, Mac strolled past USAFE Headquarters to the Officer's Club. As he stopped and looked at the fences and guard stations surrounding the headquarters, Mac thought of that autumn morning in what, '80, '81?

Man, how time flies. . . .

1st Lt. Mac MacKenzie was having breakfast in the Ramstein Officer's Club with his AC. He'd just pushed his plate aside and picked up the morning's Stars and Stripes, when a tremendous explosion shattered the morning quiet. Several windows in the club cracked, some of the exit signs were jarred loose and ended up hanging from their wiring, and general confusion soon reigned. Looking out the dining room windows, he could see people running in and out of the headquarters building, and a column of black smoke rising from the opposite side, near the main entrance and parking lot. Then a couple of SPs came in the club and ordered everyone to stay put, followed shortly by an order to evacuate. Then they weren't allowed back in the BOQ to call the Airlift Control Center, so the AC called from the Base Library. The ACC Duty Officer said, "Your alert time is in 20 minutes, get down here as best you can." When they were finally allowed in the BOQ, they couldn't get out with their bags because of another bomb scare. The SPs had blocked off the road in front of the BOQ and USAFE headquarters, so they had to bag drag down to the main road to wait for the bus. What a day that was! Luckily, no one was killed, he thought, as he turned the corner and walked to the club. . . .

"Good morning, Mac," said his copilot, Capt. Marty Blanko, as Mac entered the cafeteria line. "You look like you've recovered from that fiasco yesterday. I noticed you standing on the corner staring at the headquarters as I entered the club. What's up?"

"Oh, I was here the day that car bomb blew up in the parking lot on the other side of the building. A lot of people were lucky they weren't hurt."

"That happened just before I entered the Air Force. Must have been quite a day," Marty commented as they sat down in the dining room.

"It wasn't too much of a hassle for the crew I was on, but it did remind me how much influence luck or chance can play in our lives, especially in the flying game. Ten or fifteen minutes later, more people would have been wandering through the offices and parking lot. Luckily, the bomb went off before most people had arrived for work."

"But what does that bomb have to do with flying?"

"Well Marty, the bomb itself doesn't have anything to do with it, but just think of your own experiences or some of the things you've read about where it appeared 'luck' played a part. Windshear mishaps, for example. A string of airplanes land in marginal weather and along comes another pilot, probably a cautious, careful one, who checks on conditions and pilot reports and makes a decision that he can land, too. Then whammo! another mishap. Pilot error or bad luck? You tell me."

"I don't know. Some of those are hard to call, but they'll always put the blame on the pilot if there aren't any other overriding factors, won't they?"

"Probably. It's easy to show the mishap could have been prevented by diverting rather than flying in lousy weather. What's usually not addressed is the fact some of the pilots that landed earlier could have prevented the accident, too."

"Oh, how's that?" said Marty between bites of his ham and cheese omelet.

"You can bet that after a windshear accident, more than one of the pilots who landed shortly before the accident said to himself, 'We were damn lucky to get through that stuff ourselves, we should have reported how bad it was.' But there aren't too many willing to swallow their professional pride and report that they screwed up by continuing an approach they should have broken off. Maybe they were "lucky," but they missed an opportunity to pass along some of that luck to somebody else."

"Maybe so, Mac, but the guy that crashed still had the opportunity, and the authority, to either break off or divert before he entered a critical situation. He still had the chance to use his skills and judgment to survive."

"You're right, Marty. It still comes down to the individual. It's just that sometimes we all need a little help. There've been a lot of cases where a copilot forgot he was a pilot and became a passenger, following his AC to disaster rather than saying or doing something positive to correct an error or prevent a situation from becoming hairy. It's the same as windshear mishaps. False professional pride or fear of questioning the AC about something, have no place in a safe operation. What you said about skills brings up another point. Both of us have probably flown with guys, either ACs or copilots, that have let their skills go to pot. I don't mean just their hands-on flying skills, but their decision making skills as well. Maybe they've done the mission so long the only thing they concentrate on is completing it rather than completing it *safely*. There's a big difference between the two."

"Well Mac, I guess I've been lucky. There's that word again. I haven't flown with anyone that I could say wasn't safety conscious."

"I think most guys are, Marty. Let me give you two examples that show each side of the coin. They both happened to me in the C-5, too, so you'll appreciate what I'm talking about. Have you been to Incirlik?"

"Yeah, I had a couple of green hotdogs last month."

"Right. I've had more than a few of those myself. Anyway, the first instance happened when I was still a copilot in the C-5. We were departing Incirlik and I thought the AC was

pretty good. He seemed sensible and he flew a good airplane. If you've been there you're familiar with the departure that takes you east of the field and brings you back over so you can be at your cruise altitude before you leave Incirlik's airspace."

"Sure. There's no way to avoid it."

"Right. Well, we took off and got the gear and flaps up on schedule. It wasn't long before I noticed we weren't accelerating. The AC was keeping us right on the pitch bar of the go-around computer. When I asked him what he was doing, he said, 'Don't worry. We can beat that restriction and the go-around computer will keep us out of trouble.' I knew the computer would program the best angle of attack for a given configuration. You know, if the gear and flaps are down, engine out and so on, but all the way to 37,000 thousand feet? Granted, the Dash One doesn't say you *can't* do it that way; so I thought, OK, smarty, we'll see what happens. It's a nice clear day and I'm going to watch you and this airplane like a hawk! We got to just over 35,000 feet when the airplane quit climbing and shuddered just a little. We actually had to descend about 500 feet to begin accelerating and finish our climb. I looked over at him but he just kept his gaze on the instruments. He didn't say anything about it the rest of the trip, but I'm sure he relearned something basic but pretty important: Don't rely on uncertain techniques because you *think* it will work. Instead, rely on your training, skill, and knowledge to make your own luck. He forgot, or chose to ignore, the fact procedures in the Dash One are based on a lot of experience and testing. The climb schedule for the C-5, or any other airplane, wasn't just pulled out of somebody's hat. It's the result of flight testing, with a few other factors, like over the nose visibility for instance, thrown in. Besides, if you fly that SID to the east as far as you can and stay on the prescribed climb schedule, you'll make your restriction every time, even in a heavy C-5."

"I'll have to remember that. I've only been to Incirlik twice. What was the other example you mentioned?"

"I was the AC on that one, it also happened at Incirlik. We were on approach to Runway 23. It was a typical afternoon at Incirlik; a few high clouds, clear, with a wind from the south at maybe 8 to 10 knots. At about 200-250 feet in the air on short final, the left wing suddenly dropped. Airspeed, descent rate, power setting were all stabilized but the wing just dropped. I fed in the controls and power to counter and could feel the copilot helping me out on the yoke. We leveled, restabilized and landed. I still don't know what caused it. Windshear, weird thermals, I don't know. We heard later some guys in the fighter area on the north side of the runway thought we were going to crash and started running for the exits. If that copilot hadn't been ready to do his job, and then actually *do* it, we might have confirmed their fears. Instead, he made his own luck by remembering why he was there. I'm positive he prevented a mishap."

"Sounds like he did, Mac. But there are times when pure luck does come in. A few months ago I was on a mission from Aviano to Torrejon. We were just over Barcelona VOR at FL 330 when we heard a commercial airliner call center and say they had just come "very close" to a MAC airplane over Barcelona at FL 330. The other copilot and I were in the seats and we looked at each other and I said "That's us!" We were in some thick cirrus with the late afternoon sun in our eyes. No way we could see another airplane. It was like flying inside a ping-pong ball. He had to have been 'very close' just to be able to see us. We were both at a legal altitude, obviously the controller screwed up. Thank God for a little luck then."

"Not to mention altimeter error. Come on, alert's in 20 minutes. Let's go see if we can make some of this luck we've been flapping our jaws about."

★

A Twilight Trip

Now that I'm retired . . . I can tell this.

by Major Grover C. Tate
Joshua, Texas

It had been one of these missions that ended up okay in spite of little aggravations. There was the long delay getting the clearance, a muddled departure report, erratic winds along the way, nagging intermittent engine malfunctions, and then just making the gate and ETA by a hair's width. Then there was a bit of a hassle at debriefing, a late crew bus and a sick air conditioner at the BOQ. I flopped on the sack and just as I was in the forgetful twilight before sleep this three-star came into the room. In spite of the heat of the day, he was dressed in full blues with enough ribbons for an entire combat squadron.

"Get dressed and come with me!" he ordered.

"But, sir, I just went into crew rest," I protested.

"That was an order, captain, not a request!" he barked.

I dressed and followed the general to his jeep and crawled aboard as ordered. We drove through the jungle for a few miles and came upon a sprawling aircraft graveyard. As far as one could see, old aircraft covered the land. Some were total wrecks, some were burned, while others stood elegantly as if only waiting for flight crews. There were no bombers or fighters; only transports and airlifters. There was the faithful old C-47, C-46, C-54, C-45, C-118, C-121, C-119, C-130, C-124, 707s, C-141, the gigantic C-5 and many others that I didn't recognize. The insignia on the derelicts differed; some indicated the Air Transport Service, some the Air Transport Command; some had MATS and some had the modern MAC insignia.

The general let me wander among the old aircraft for awhile and then led me to what appeared to be a national cemetery, all of the tombstones alike and aligned.

"This, my young friend, is the burial ground of famous fliers' last words. Look at the markers, read each one, remember them, and then tell all your flying buddies what you have learned here this day," the general directed.

"I can't remember all of those things, sir," I pleaded.

"Then write them down," he commanded. And I did just that.

HONORABLE MENTION 1986 MAC FLIGHT SAFETY WRITING CONTEST
(SPECIAL CATEGORY)

Maj. Grover C. Tate, USAF (Ret), has entered the MAC Flight Safety Writing contest numerous times, winning several times. He is a happily retired 63 year-old maverick who's last address before Joshua, Texas was Zihuatanejo, Mexico. He works as a freelance writer when not actively pursuing his well-earned retirement. An ex-boxer, ex-pilot, ex-navigator, and ex-other fascinating careers, he's also an ex-"big-corporation man" who confesses he's always marched to the beat of a different drummer!

The next thing I remember about this strange incident was crew alert. I answered the call and started getting ready. A slip of paper on the dresser attracted my attention and when I examined it there was this list of "Famous Last Words" in *my handwriting*! Someone is pulling an elaborate trick was my first thought and then I remembered the general. It was like the Twilight Zone; but that was make believe and this was real. I stuffed the list in my briefcase and went on with the business of the day.

For the rest of my active duty career I kept the little adventure a secret as I knew no one would believe such a crazy story. Now that I am retired and out of reach of a flight surgeon, who would put me out to graze at the funny farm, I feel I should tell the story and show the list to everyone.

"Come on guys, I promised that I'd be home by Friday night."

"I don't need a map, I've flown this route before."

"Ah, it's only leaking a few drops and we have plenty of fuel."

"We'll pick up a tailwind along the way and make it okay."

"It's only a malfunctioning indicator light."

"It's only a little headache, a couple of aspirin and I'll be okay."

"It's only a minor squall line."

"So we're a little above the max cruise line. . . ."

"Let's downgrade it from a cross to a diagonal and get this show on the road."

"I'm okay, I didn't have a single drink within 50 feet of the aircraft."

"C'mon Old Buddy, so I made a few mistakes. I'll do it right on my checkride next time. What are buddies for?"

"I've always done it this way."

"If you know one aircraft you know them all."

"What's a wet runway factor? I never heard of it."

"Who needs all of that stuff? We have computers."

"It'll be OK. Let's go or we'll miss block time."

"We'll get it fixed later."

"I only need glasses to read small print in a bad light."

"I'll eat whatever I want, we're flying a pressurized aircraft."

"What's a little bit of frost on the wings?"

"What's a couple of extra pounds? We have runway and thrust to spare."

"So I didn't get any sleep. A couple of cups of coffee and I'll be wide awake."

"Joe told me it's a normal discrepancy with this type of aircraft—don't worry about it."

"We'll keep an eye on it during flight."

"You don't have to have an approved tiedown, just use some rope."

"This is a ridiculous procedure!"

"Check out the statistics, they're in our favor."

"I've got more time in this bird than he has total time so to hell with his opinion."

"Just put my coffee there on the pedestal."

"What's METO for if you don't use it once in awhile?"

"Just because the impact lights came on doesn't mean that it has to be written up as a hard landing."

"Fill out the slip for me at the flight safety meeting. I have other things to do."

"Kick the tires, light the fires, and we'll brief on guard."

"I'll have chili and beer and please hurry, I have a scheduled takeoff in thirty minutes."

"We're pressurized, why do I need a mask?"

"We're late now so don't worry about cleaning the windshield."

"So what's a small cut in one tire?"

"Like Bogart, I can fly the crate this thing came in."

As I finish this list I feel a heavy burden of guilt. Had I told of it many years ago there might be fewer additions to the old aircraft graveyard.

Ah, NO SWEAT!!!

Safety—A State of Mind

The key to mishap prevention.

by CW3 Dennis E. Dura
Courtesy US Army Aviation Digest

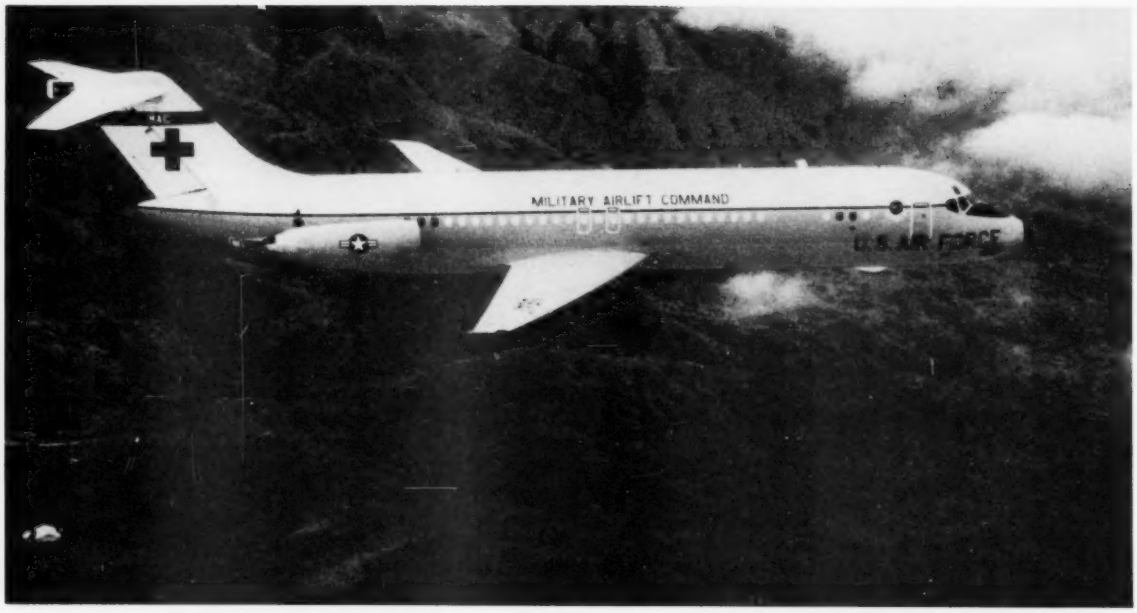
A few years back, I asked a weatherbeaten old aviator, about to retire with umpteen thousand hours of flight time, how he managed to never have an accident.

The old sage looked at me through his years of experience and said, "I was lucky." He laughed and then added more seriously, "I never went out and purposely did something dumb."

I am sure a number of us have asked older and wiser aviators how they managed to fly through the years without doing anything that would make interesting reading in a mishap report. But I think those two statements made by the "old pro" aviator came closest to summing up all the various pieces of advice I have read or heard on the subject of flight safety. He was lucky in the sense nothing ever happened to him that was beyond his control. Also, he approached flying in an intelligent manner.

There is nothing we can do about "acts of God." If our time is up, at least we have the satisfaction of knowing we've flown the good flight. However, the other side of the coin is our awareness of the intelligent approach to flying. "The devil made me do it," or "it seemed like a good idea at the time," loses the implied humor when a preventable mishap occurs. The joy of flying fades to a tear when we realize we've lost so many of our brethren in needless mishaps.

All of us collectively project a state of mind that is assimilated within the aviation community. All the commanders, safety officers, instructor pilots, regulations, and procedures can't stop us from having a mishap if we really work at it. Notice, I wrote "work at it," not "want it." Often, this effort comes from the individual's state of mind toward safety as influenced by the prevalent attitude toward flight safety throughout the aviation community. If we are not collectively strong in our safety convictions, some of us will falter with an ensuing mishap. However, if all



of us have in our "mind's eye" a strong and positive attitude, then that state of mind will grow into a strong and positive motivating force counteracting any unsafe tendencies or temptations.

Pilots are trained to instinctively respond to an engine failure in a helicopter by reducing collective, or in a multiengine airplane by applying power. They must also be trained from the beginning to be safety conscious. Supervisors who nurture safety awareness, along with air sense development in new pilots, help ensure a "safety state of mind" is created in these crewmembers. Indeed, this state of mind will become as normal as checking the weather prior to flight.

Some people think safety-oriented pilots may not accomplish their missions because of self-imposed restrictions. But, by definition, safe pilots are those that adhere to procedures and regulations designed to accomplish the mission, along with physical limitations of the aircraft. If the mission requires a pilot to exceed the physical limitations of an aircraft, then it will be doomed from the beginning. If a mission requires the crew to violate regulations or procedures, then the commander should evaluate the necessity of the mission versus the consequences.

Sometimes we think a small, or isolated, negative outlook on safety has a negligible effect in the larger scheme of things; but we tend to ignore what a wise philosopher once said, using the example of ripples on the surface of a pond; that is, each pebble that strikes the surface creates a series of ripples. When the ripples from two different sources interfere with each other, a disturbance occurs and symmetry is lost. In other words, no one knows, in all circumstances, the effect he or she may have on another—some time or distance away.

This "safety state of mind" must pervade the whole crew. Each crewmember reinforces the other in their actions during a safe flight. The common denominator in safe flying is the individual crewmember. As crewmembers mature through dedication, hard work, and adherence to procedures and regulations, they also make a commitment to always be ready to accomplish the mission. This 'readiness" can only be sustained through safe operating practices, developed, and then passed on to succeeding crewmembers. In a very *real* sense we *are* our "brother's keeper." By looking out for each other, we can all function as a safe and effective team.

There is some fallacy to the notion that exercise of common sense will influence an individual to act safely. Common sense is not altogether an innate ability. Experience and an intelligent approach to your actions also develops common sense. This is why safety awareness must be instilled in an aviator from the very beginning of flight training, so performance of any flight task under any conditions will be done with what is usually called, "common sense."

When all is said and done, if we are ever to even come close to achieving a zero mishap rate, everyone throughout aviation must be made to realize their individual participation in the flight safety program counts. From generals to privates; from flight examiners to student pilots; all must develop an inner safety awareness applicable to their particular jobs. Our state of mind toward safety will, in the final analysis, determine whether we spend our time earthbound, drowning in a proverbial sea of broken aircraft and mishap reports, or be where we should be, flying—*Above the Best!*

To be understood, you must . . .

Say What You Mean—Effectively!

by Maj. Michael J. Iltis
Associate Editor

A few days ago, I was thumbing through several editions of leading defense-related technology periodicals. As I turned the pages, I paused a few minutes and *really* reflected on some of the things I'd just finished reading. The vocabulary was particularly interesting. Words like "cockpit integration," "helmet mounted display," and "Forward Looking Infra Red" immediately jumped out at me. I looked a little closer and found phrases such as, "alert by exception philosophy," "engine instrument computer monitoring," and "automatic initializing of control functions." These words and phrases were used, in the context of the articles, to describe the lengths which technology (promoted by numerous creative contractors) has gone to enhance flight safety by reducing pilot workload.

After perusing these magazines, I picked up some mishap reports and began reading. It didn't take long for me to make the connection between the two types of articles. "Why," I asked, "in a world of decreasing pilot workload, are we plagued with the number of "pilot error' mishaps?" The answer seemed to lie in the word "human" found in the phrase "human factors." So far, the human is the only potential mishap-causing factor that technology hasn't been able to program out of the flight safety equation. One "human factor" stood out as a particularly difficult problem to deal with—aircrew communication.

"Ah-ha!" exclaimed the clever associate editor. "Now I've got an idea for an interesting TMF article. I'll focus on the problems associated with poor aircrew communication." At first, I thought a long-winded tirade on pronunciation would fit well, but after falling asleep three times while writing the first draft, I opted, instead, to let stories about poor aircrew communication speak for themselves (using only a *little* editorial license to highlight the important points). I'll use the three mandatory elements of communication (sender, message, and receiver) as points of departure on our venture into the nether regions of poor aircrew communication.

THE SENDER. In order for communication to take place, there must first exist a sender—someone who wishes his or her ideas conveyed to someone else. In order for the message to be properly conveyed, the sender must be conscious of the language used and the intended context of the message. Witness the actions of one aircrew.

A civilian air carrier 747 was taxiing for takeoff when a flight attendant spotted what she considered an unusually large amount of smoke coming from one of the engines. She immediately picked up the cockpit interphone and rapidly said something to the effect, "We have an engine fire, should we evacuate now!?" The cockpit crew was preoccupied and delayed picking up the intercom. When one of the crewmembers finally responded, he began the conversation by saying, "Go ahead," meaning the person on the other end of the intercom should continue with the conversation. Unfortunately, the flight attendant *didn't* understand the phrase that way and took the comment as direction to begin passenger evacuation—so she did. Many passengers used the emergency exits and slides while the aircraft was moving with all engines operating. Numerous injuries resulted from this "failure to communicate."
Courtesy ASI Monitor

(Editor's note—I'll bet the cockpit crewmember who said "Go ahead" wished he'd developed a different communication habit pattern to tell others when it was their turn to speak.)

THE MESSAGE. If you think the sender in the last story messed up *that* communication big time, this next episode should convince you a double meaning message can have just as disastrous an effect.

To the student pilot of this tandem seated jet trainer, trim was more a function of biceps than thumb action. The young aviator was in the middle of flying a GCA, when he received a call from the air traffic controller warning him of air traffic conflicts nearby. After several "no joy" calls to the controller, the IP in the front seat finally saw the traffic in question and replied to the controller, "I've got it." The jet impacted the ground shortly thereafter. During the ensuing safety investigation board, investigators could find only one system abnormality—significant nose-down trim.

Courtesy ATC Safety KIT

(Editor's note—The question, now, naturally focuses on the message sent by the IP. Could the student pilot have assumed the IP had the *controls* based on his comment "I've got it" rather than the message's intended meaning, "traffic is in sight?" Perhaps the creative license we use in aviation jargon should be reevaluated to ensure we *don't* use double meaning words and phrases. If both the IP and student developed proper terminology habit patterns, this mishap might not have happened.)

THE RECEIVER. Even if the sender sends properly, and the message consists of understandable vocabulary, it is all for naught if the receiver, either through cultural differences between he and the sender, or lack of familiarity with the jargon, fails to properly interpret the message in context.

The objective of this night tactical training mission was to insert/extract pararescuemen into an LZ. The helicopter crew established the aircraft in a hover over the training area and performed three fast rope insertions. The first two were accomplished without incident. However, the last one was performed over a slightly different location. The area selected was completely acceptable even though it did have a gentle upslope in relation to the aircraft's final heading of 240°. After the pilot established the hover, he directed the PJ team leader to deploy the fast rope. Both the team leader and the flight engineer confirmed the rope was at least five feet on the ground before the team deployed. The first PJ out of the aircraft deployed without incident. The second man out said, afterward, he felt as though he fell about two feet before hitting the ground. The third pararescueman believed he fell about six feet before he hit the ground. This individual suffered a broken right ankle as a result of the fall.

Throughout this event, the crew complied with all required fast rope procedures. However, during the final series of personnel insertions, the flight engineer gave "down three" and "down five" intercom calls to the pilot—the aircraft had inadvertently gained altitude. The ensuing mishap investigation revealed the pilot flying got confused by the flight engineer's terminology. He thought there were three pararescuemen on the ground when the engineer called "down three" rather than the message's intended meaning of "move the aircraft down three feet." (It's important to note that the term "down three, down five, etc" *is* standard terminology).

(*Editor's note*—Regardless of who was "at fault" in this case, the idea is clear; if the receiver is not aware of the meaning of "standard terminology" then the terminology *isn't* standard. This type of miscommunication usually results from lack of training dicipline—standard terminology is not reinforced on a daily basis.)

So what does all of this lead to? After all, you *intelligent* and *experienced* crewmembers out there would never make the stupid mistakes the crewmembers in the previous three examples did, right? Not so fast, Red Rider. Remember what I said earlier in this article about *human* factors? Unless you've had a traumatic chromosomal change over the last two pages, you're still human and, therefore, subject to making the same "stupid" mistakes. Still not convinced? Okay, let's look at a few of the common (but less-than-standard) terms you might have "heard" throughout your tenure in the aviation business.

- **"42 right base to final, full stop".** There wouldn't dare be another "42" in the pattern that day—would there?

- **"Knife 33, winds are calm. Cleared to land. Company traffic departing runway 24, report traffic in sight".** Response from knife 33—**"Roger".** Did Knife 33 see the traffic, or was he/she acknowledging landing clearance?

- **"Bongo 48, off the perch for 32 Right. Give and go."** We're not quite sure where this radio call originated, but we suspect the pilot is attempting to inform the controller he is requesting landing clearance from inside downwind for a touch and go.

- **"Tacky flight, come up Winchester."** Again, we're not sure, but certain C-130 experts claim this is a request for a C-130 flight to come up on 303.00 on the UHF radio. This should not be confused with a call to indicate you're out of ammunition.

- **"No joy" and "Tally ho."** Commonly used to indicate that "traffic is in sight" or "negative contact."

These were just a few examples of nonstandard radio communications that have the potential of interrupting effective air-to-air or air-to-ground communications. No doubt there are many more. Aside from being a potential source of misinformation, these calls, and others like them, are particularly dangerous because they may not be questioned by the receiver. Another inherent risk is the fact that even the sender may not be fully aware of the term's real meaning. For example, the term "bingo" is accepted terminology to relay a particular aircraft fuel state, but it has been used as nonstandard terminology to indicate everything from "crossing over a way point" to an affirmative answer to a question.

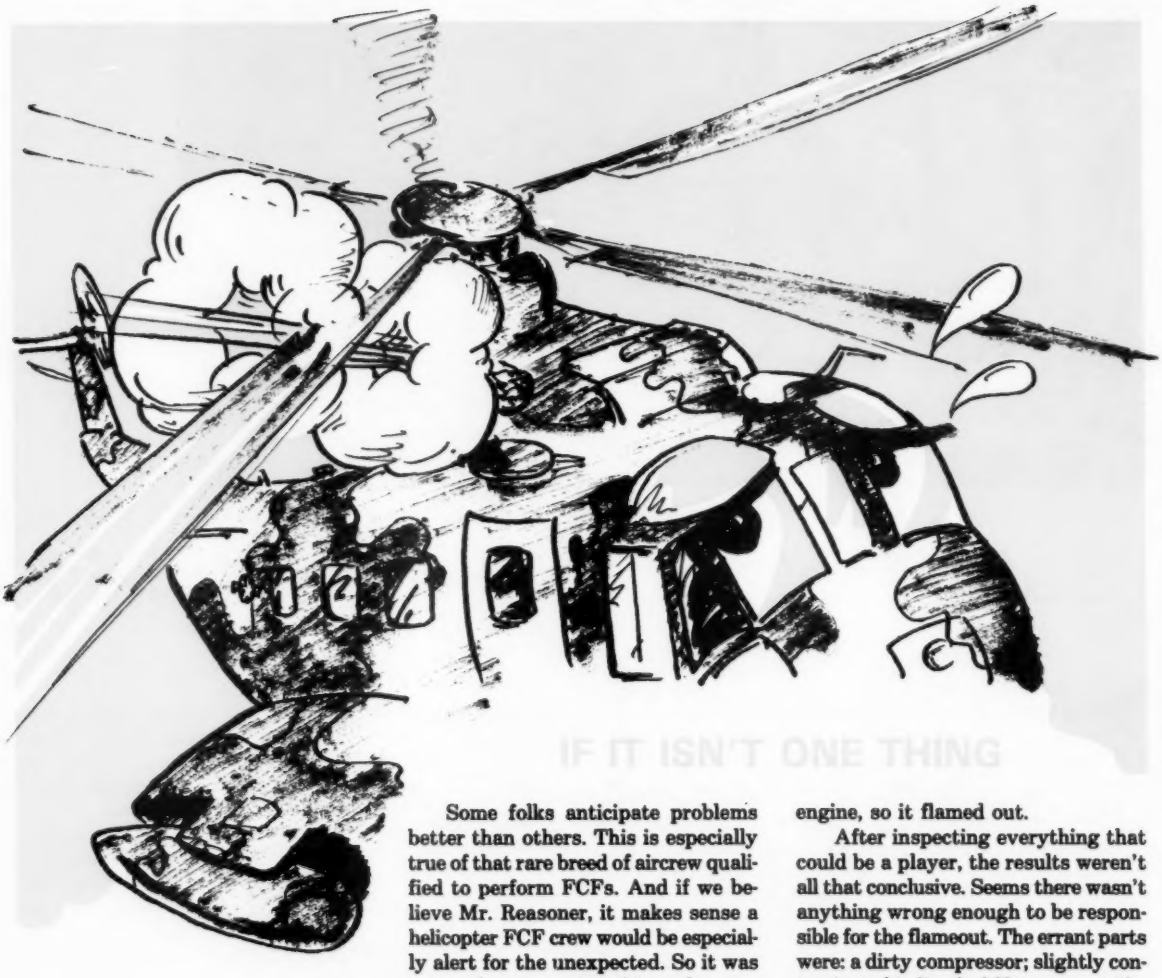
Technology has done much to relieve cockpit workloads. Statistics show a decrease in materiel deficiency caused aircraft mishaps, leaving the crewmember increasingly responsible for causing his/her own mishaps. One such causal human factor is aircrew communication. Until we can adequately "say what we mean" and convey that meaning to others, communication will continue to be a barrier to flight safety.

We might do well, therefore, to take a few minutes to examine our own communications habit patterns. How much of your aviation jargon is readily understandable to *all* who have a need to understand it? What "bad habits" do you inadvertently "teach" to less experienced pilots in your unit? How vulnerable are *you* to making some of those "stupid" mistakes you previously thought were reserved for those less qualified and experienced than yourself?

Safe Professionals in the Field

During a serious aircraft malfunction on the morning of 14 July 1986, Capt. Donald L. McCormack of the 1st Helicopter Squadron and crew found there is no such thing as a "routine" mission. The crew was verifying their altimeter settings just prior to takeoff on a routine training mission when the crew chief noted what appeared to be white smoke coming from the right side of the aircraft. As she began moving toward the helicopter to inform the crew, the aircraft's nose suddenly lifted up, and the entire aircraft started rocking violently, side to side. Captain McCormack, (the instructor pilot) felt the initial pitchup. As he turned to ask the other pilot, Capt. Richard W. Leibach, why they were lifting off early, both pilots simultaneously realized they were experiencing violent, uncommanded control inputs and aircraft movements. Captain Leibach instantly rolled the throttles to flight idle. The situation rapidly became critical; the helicopter was rocking so hard it actually bounced more than five feet away from its parking spot (the crew chief later reported rollover of the aircraft appeared imminent). Flight control movements became so pronounced it was difficult to hold on to the flight controls at all. Captain McCormack took over the controls and fought to keep the main rotor as level as possible. TSgt. Thomas E. Baker, the flight engineer, reported no apparent engine or transmission malfunctions and called for an emergency shutdown, just as Captain McCormack released the idle stops on both engines and rolled the throttles off. Despite the engine shutdown, the rocking and pitching continued. Captain McCormack continued to manually counteract movements of the main rotor system. Realizing the malfunction was probably in the main rotor system, Captain McCormack directed use of the rotor brake at approximately 45% N_r. Captain Leibach applied the brake, and the movements subsided as the rotors came to a stop.

The source of the malfunction was traced to the sudden loss of all balance weights inside one of the Huey's two main rotor blades. This loss caused a tremendous imbalance throughout the rotor system, which would have resulted in major damage to the aircraft had it been allowed to progress. The crew's quick, skillful reaction prevented serious damage, and permitted immediate identification of the cause of the mishap. Captain McCormack and his crew had just a few seconds to correctly interpret the symptoms of a unique emergency, and to deal with it effectively. Captain McCormack, Captain Leibach, and Sergeant Baker's crew coordination and flawless reaction to this mishap demonstrate the safety professionalism at the unit level that keeps mishap prevention working.



IF IT ISN'T ONE THING

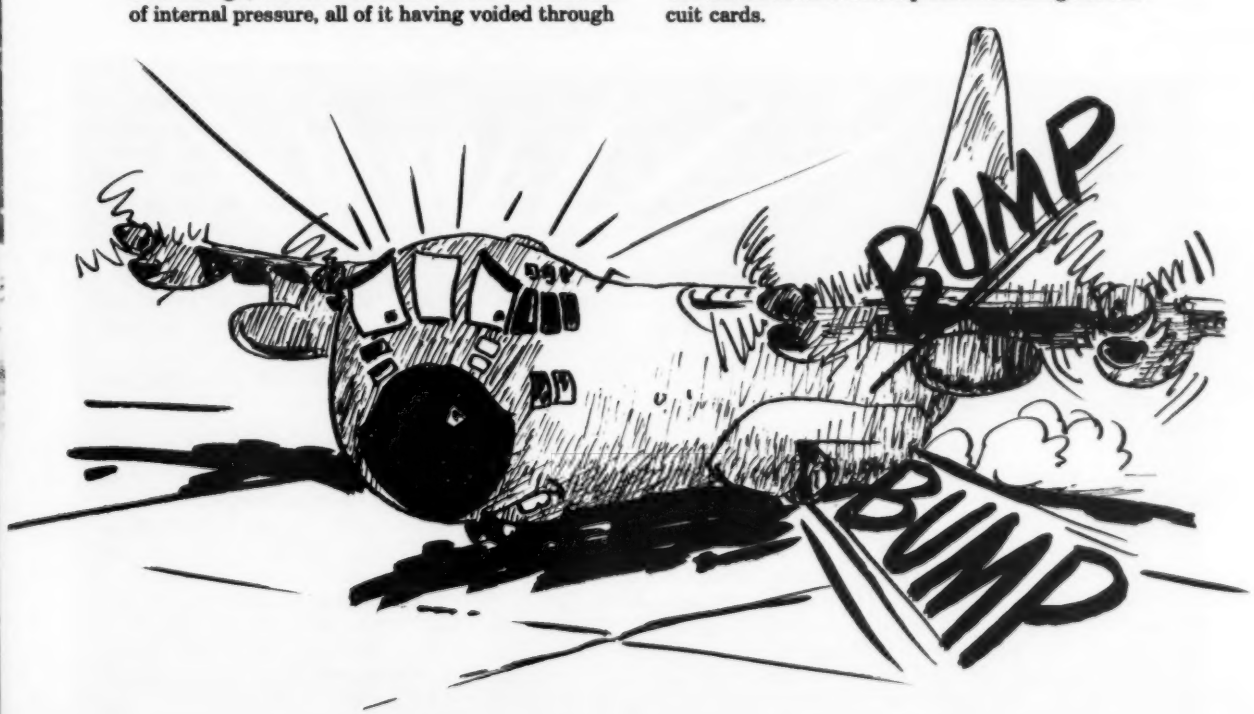
Some folks anticipate problems better than others. This is especially true of that rare breed of aircrew qualified to perform FCFs. And if we believe Mr. Reasoner, it makes sense a helicopter FCF crew would be especially alert for the unexpected. So it was not such an amazing thing when our vertical flight testers found their assigned vehicle not performing up to expectations. Specifically, they didn't get quite the results they wanted from the engine acceleration-deceleration, flat pitch, and freewheeling check. During this check, the crew advanced the number two throttle to maximum, but the engine was unwilling to cooperate. The shiftless engine refused to accelerate beyond 77 percent NG. The crew retarded the number two throttle to ground idle, which infuriated the engine, so it flamed out.

After inspecting everything that could be a player, the results weren't all that conclusive. Seems there wasn't anything wrong enough to be responsible for the flameout. The errant parts were: a dirty compressor; slightly contaminated in-line fuel filters; a centrifugal fuel purifier evidencing some minor rubbing; and an idle stop set within limits, but at the minimum setting. Taken alone, none of these events could reasonably be expected to cause the acceleration problem or flameout. But when they gang up on you, that's a different story. The technical representative for the weapon system agreed the most likely cause was the combination of tolerable, but degraded conditions of the four parts.

WHEEL OF MISFORTUNE

Did you ever have one of those days when you finally had a handle on things, and then found you just couldn't let go? So it was for this C-130 crew engaged in mind-stimulating local proficiency training. Having warmed up with a few superb stop and gos (or is that stops and go?), our heros were primed for a more Herculean effort—a full stop landing. To further complicate the mission, they elected to perform said landing feat at a field other than the homedrome, though in the local area. With traditionally flawless efficiency, the stalwart crew expediently completed the before landing checklist and the pilot gracefully eased the turboprop to "terra firma." So far so good, but then . . . a mysterious "bump," accompanied by a now-melodramatic "muffled bang." Well, you can't fool a sharp aircrew, they suspected something amiss. With appropriate alacrity these thorough airmen deplaned a loadmaster to make "checky-checky" on the aforementioned ill-omened spatial disruptions. Sure enough, the left aft main tire was now devoid of internal pressure, all of it having voided through a most inconveniently placed orifice. There was no doubt about it—a flat tire. But what could have induced this traumatic structural failure?

A meticulous maintenance inspection revealed the evil lurked within the victimized Herk's antiskid control box. The dastardly beast wouldn't release the left aft brake. While possibly an unrelated event, the crack maintenance team kept on the investigation, submitting the foul part for an MDR; the ultimate in detailed, tortuous examination. If the dark mastermind was to reveal its dreadful secret infection, it would be during this phase of the inspection. Surprisingly, the beast didn't crack, even under expert probing it revealed nothing. Still dedicated, the maintainers continued to probe for an answer to this most mysterious of ills. Finally, the source, an obsolete circuit card, was identified by the material manager. As punishment, the control box was processed through supply as a "malfunction code F" and the old circuits were replaced with integrated circuit cards.



Quick Stoppers

THIRSTY?

During those long flights overseas, it's not unusual for a crew to require an additional hydrogenated hyroxide or two for refreshment. But that doesn't usually include their aerospace steed. Not so for our fearless C-21 crew on foreign shores.

They'd landed their aircraft with about 1,500 pounds of fuel aboard. The aircraft commander, reflecting on his fuel requirements for the day, requested an additional 200 gallons of the precious fluid pumped aboard, preferably 100 gallons in each side, for symmetry. The crew then went inside for some quick organic health food (animal-adipose paste pate'—a.k.a. a hamburger).

On their return, the crew accomplished the necessary preflight and attempted to recheck the fuel quantity. Unfortunately, the fuel quantity guages felt a bit finicky (not having been invited to the feast) and were too erratic for accurate readings. Consequently, the AC decided to start the aircraft and taxi to a level spot to check the fuel quantities before taking the aircraft aloft. Engine start was normal, chocks removed and the craft began its graceful taxi. About four minutes later, however, something ran amok. The left engine unilaterally elected to enter crew rest, flaming out for no apparent reason (there wasn't even any decent shopping here). Now this engine was normally a team player, so the crew suspected something, perhaps fuel contamination, was at fault. Reacting to that suspicion, they shutdown the right engine and, after the appropriate checklist completions, left the aircraft to sample the fuel in the left tip tank. What they drew from the tank looked to be 80% water; according to the T.O., more than just a little out of tolerances. The left wing tank also had water in it, but the right tip and wing tanks were okay.

Ever-ready, transient alert personnel sampled fuel from the truck and analyzed it. The result was a reading of 15 parts per million (max allowable is 10 ppm). Besides our hero's aircraft, two others had been fed from this fuel truck, but fortunately they tested negative for water. Draining the C-21 yielded some seven quarts of water. The fuel truck sump contained about two quarts of water. Naturally curious types, the crew and maintainers wondered at the source of the unrequested imitation "Perrier." A review of history revealed some interesting facts about the sphynx, and more relevantly, that the fuel truck had recently been severely maintained; one portion of the maintaining procedure required flooding the truck to facilitate welding (something about combustion problems). The final finding revealed the miscreant water had holed up in the plumbing between the pump and the over-the-wing hose reel connection. This explains why the other aircraft escaped the problem, they were refueled using the single point refueling system.

AFTER DEADLINES

MAC C-141B CLASS A MISHAP IN JAPAN--A C-141B, assigned to the 63d Military Airlift Command sustained severe damage on landing at Marine Corps Air Station Iwakuni, on the island of Shikoku, Japan. After landing, the pilot experienced difficulty maintaining directional control and stopping. The aircraft departed the end of the overrun and came to rest 200 feet off the paved surface. Despite the ensuing wing fire and the severe structural damage to the aircraft, all passengers and crewmembers safely evacuated the aircraft. Five passengers were treated for minor injuries and released by medical authorities at MCAS Iwakuni. This was MAC's first Class A mishap for 1987.

MAC C-21 CRASHES NEAR DANNELY FIELD, MONTGOMERY, ALABAMA--A C-21A, Assigned to the 375th Aeromedical Airlift Wing, crashed approximately 1.5 miles east of Dannely Field, Montgomery, Alabama, on 14 January 1987. Two of the three crewmembers were killed in the mishap, MAC's second Class A of the year. The third pilot was pulled to safety just before the aircraft exploded by six men who'd been working in a nearby field. The surviving pilot was listed in critical, but stable, condition at St. Margaret's Hospital in Montgomery. The C-21A took off from Maxwell AFB and was en route to Eglin AFB, Florida where it's assigned as part of the 1402d MAS.

RESERVE CREW EVACUATES SAN JUAN HOTEL FIRE VICTIMS--Eight victims of a New Year's Eve hotel fire in San Juan, Puerto Rico, were evacuated for medical treatment by members of the Air Force Reserve. Four days after the fire, a C-141 crew assigned to the 446th Military Airlift Wing (Associate), McChord AFB, Wa., flew patients to New Haven, Connecticut, for treatment at the Yale-New Haven Medical Center. The aircraft then flew to McGuire AFB, New Jersey, where one of the burn victims was taken to St. Barnabas Medical Center in Livingston. The crew had flown to Charleston South Carolina, on a routine cross-country training mission when it was notified of the evacuation mission by patient Airlift Control Center, Scott AFB, Illinois. The flight nurses and medical technicians providing care for the patients were from the 40th Aeromedical Evacuation Squadron, also at McChord. The mission was approved by the White House.

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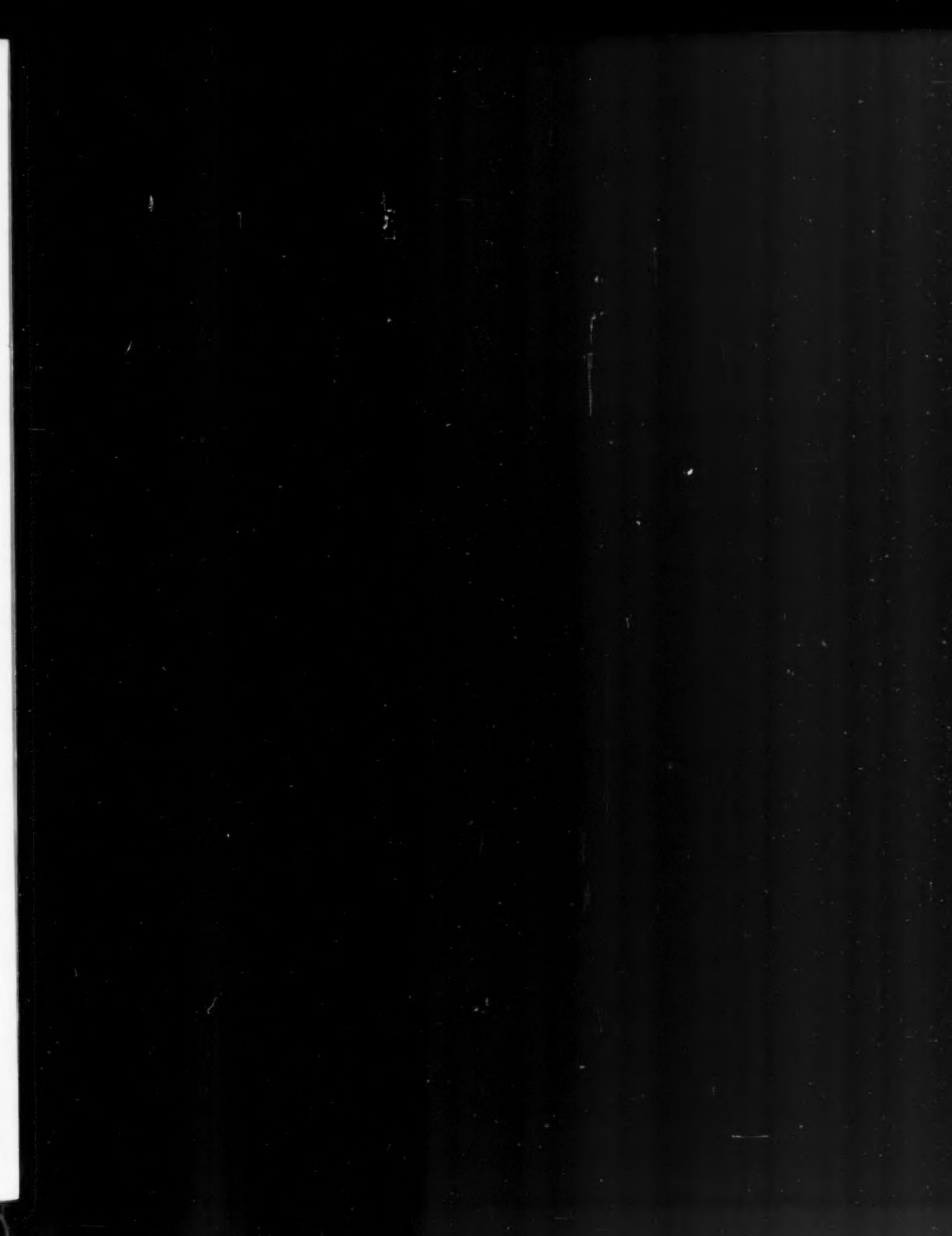
We're looking for the kind of officers who stand out, in a professional sense of course, to fill two vacancies our departing associate editors will create. We need proud, efficient, clever, intelligent, handsome/beautiful, well-spoken, creative, thorough, informed, and enthusiastic individuals who possess superb writing skills. That's right, we're lowering our standards. We know we can't *really* replace the editors we now have. Sometimes though, you just have to move on, and so it is with our current modest authors (who'd undoubtedly be Pulitzer winners except for GPO restrictions), both of whom edited this ad. We'll have positions available in May and July of 1987 for two captains and/or junior majors. Flight safety experience is a plus; a sense of humor is required; modesty is optional. Before concluding you haven't a chance of qualifying, remember: a journalism or public affairs background *isn't* a requirement (though it certainly won't disqualify you). Check through a few issues of *TMF* and you'll see we write just the way we talk (and we're working on improving the way we talk). This could be your big break! If you're even remotely interested (not to imply the kind of tour this is), give Major Weinzierl, Supervising Editor, a call at AV 576-3534/5542.